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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,961	01/14/2004	Gianluca Filippini	02-AG-492/AL	4229

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EXAMINER	
DHARIA, PRABODH M	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
06/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/757,961	FILIPPINI ET AL.	
	Examiner	Art Unit	
	Prabodh M. Dharia	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01-14-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 01-14-2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

3. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claim 4 is objected to because of the following informalities: Claim 4 per applicant's recitation is a dependent claim however, fail to indicate independent claim depended from. Appropriate correction is required.

5. **Status:** Please all replies and correspondence should be addressed to examiner's new art unit 2629. Receipt is acknowledged of papers submitted on 01-14-2004 under new application, which have been placed of record in the file. Claims 1-32 are pending.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 2, 4-10,13,16-18, 20, 25 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,944,226 B1) in view of Srinivasan, Venugopal (US 20040170381 A1).

Regarding Claim 1, Lin et al. teaches a method of converting digital signals between a first and a second format (Col. 18, Lines 18-27), the method comprising: generating coefficients representative of said digital signals; subjecting said coefficients to quantization (Col. 18, Lines 18-47).

However, Lin et al. fails to disclose generating a dither signal; and adding said dither signal to said coefficients before said quantization to generate a quantized signal.

However, Srinivasan, Venugopal teaches generating a dither signal; and adding said dither signal to said coefficients before said quantization to generate a quantized signal (page 2, paragraph 15, pages 7,8, paragraphs 87-89, page 6, paragraph 68).

The reason to combine dithering operation is the original MDCT coefficients that were set-to zero had small non-zero values that contributed to the overall energy of the audio stream. Dithering is intended to compensate for this lost energy.

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Srinivasan, Venugopal in teaching of Lin et al. to able to have a transcoding digital video signal converter for a video recording system for a display system in which unauthorized compression/decompression detected using dithering operation adding to the coefficients before quantization to compensate for the energy of the signal.

Regarding Claim 2, Lin et al. teaches subjecting said coefficients to quantization comprises subjecting said coefficients to a uniform quantization (Col. 18, Lines 18-47).

Regarding Claim 4, Srinivasan teaches subjecting each said coefficient to a first quantization step in the absence of any said dither signal being added to generate an undithered quantized coefficient; and checking if said undithered quantized coefficient is equal to zero, such that when said undithered quantized coefficient is equal to zero, taking said undithered quantization coefficient as said quantized signal, and when said undithered quantized coefficient is different from zero, adding said dither signal to said coefficient and subjecting said dithered coefficient to a quantization step to generate said quantized signal (page 2, paragraph 15, pages 7,8, paragraphs 87-89, page 6, paragraph 68).

Regarding Claim 5, Srinivasan teaches the spectrum of said dither signal is gaussian, uniform, sinusoidal or triangular (page 2, paragraph 15, page 8, paragraphs 89, 90).

Regarding Claim 6, Srinivasan teaches dither signal is generated as a pseudo-random variable having a uniform distribution by subsequently modifying said distribution to at least one distribution of said group (page 2, paragraph 15, page 8, paragraphs 88-90)

Regarding Claim 7, Srinivasan teaches dither signal is generated from a plurality of independent pseudo-random variables (page 2, paragraph 15, page 8, paragraphs 88-90).

Regarding Claim 8, Lin et al. teaches subjecting said digital signals to a discrete cosine transform to generate said coefficients to be quantized as discrete cosine transform coefficients (Col. 18, Lines 18-47).

Regarding Claim 9, Lin et al. teaches quantization comprises a part of a transcoding process between an input stream of digital signals at a first bitrate and an output stream of digital signals at a second bitrate, said second bitrate of said output stream of digital signals being selectively controlled (Col. 18, Lines 18-47).

Regarding Claim 10, Lin et al. teaches conducting a pre-analysis process on said input stream including: quantizing said signals with a given quantization step; and evaluating the

number of bits spent for coding said coefficients, and in that said bit-rate of said output data stream is controlled as a function of said pre-analysis (Col. 18, Lines 18-47).

Regarding Claim 13, Lin et al. teaches quantization comprises part of a transcoding process between an input stream of digital signals at a first bitrate and an output bitrate at a second bitrate, said transcoding process (Col. 18, Lines 18-47) Boyce teaches subjecting at least part of said input digital signals to low pass filtering step followed by downsampling (Col. 13, Lines 28-67).

Regarding Claim 16, Lin et al. teaches digital signals comprise, in at least one of said first and second formats, MPEG encoded signals (Col. 18, Lines 54-570.

Regarding Claim 17, Lin et al. teaches a system for converting digital signals between a first and a second format (Col. 18, Lines 18-27), the system being configured for generating coefficients representative of said digital signals; comprising: at least one quantizer for subjecting said coefficients to quantization; (Col. 18, Lines 18-47).

However, Lin et al. fails to disclose generating a dither signal; and adding said dither signal to said coefficients before said quantization to generate a quantized signal.

However, Srinivasan, Venugopal teaches generating a dither signal; and adding said dither signal to said coefficients before said quantization to generate a quantized signal (page 2, paragraph 15, pages 7,8, paragraphs 87-89, page 6, paragraph 68).

The reason to combine dithering operation is the original MDCT coefficients that were set-to zero had small non-zero values that contributed to the overall energy of the audio stream. Dithering is intended to compensate for this lost energy.
Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Srinivasan, Venugopal in teaching of Lin et al. to able to have a transcoding digital video signal converter for a video recording system for a display system in which unauthorized compression/decompression detected using dithering operation adding to the coefficients before quantization to compensate for the energy of the signal.

Regarding Claim 18, Lin et al. teaches quantizer comprises a uniform quantizer (Col. 18, lines 40-45).

Regarding Claim 20, Srinivasan teaches a first quantizer for subjecting each said coefficient to a first quantization step in the absence of any said dither signal being added to generate an undithered quantized coefficient; a control module for checking if said undithered quantized coefficient is equal to zero; an output element for taking said undithered quantization coefficient as said quantized signal when said undithered quantized coefficient is equal to zero; an adder for adding said dither signal to said coefficient when said undithered quantized coefficient is different from zero; and a second quantizer for subjecting said dithered coefficient to a quantization step to generate said quantized signal for feeding to said output element (page 2, paragraph 15, pages 7,8, paragraphs 87-89, page 6, paragraph 68).

Regarding Claim 25, Lin et al. teaches for transcoding an input stream of said digital signals at a first bitrate into an output stream of digital signals at a second bitrate, including a bitrate control block for selectively controlling said second bitrate of said output stream of digital signals (Col. 18, Lines 18-47).

Regarding Claim 32, Lin et al. teaches a computer program product directly loadable in the internal memory of a digital computer and including software code portions for performing, when the product is run on a computer (Col. 20, lines 33-52), a method of converting digital signals between a first and a second format, the method comprising (Col. 18, Lines 18-27): generating coefficients representative of said digital signals; subjecting said coefficients to quantization (Col. 18, Lines 18-47);

However, Lin et al. fails to disclose generating a dither signal; and adding said dither signal to said coefficients before said quantization to generate a quantized signal.

However, Srinivasan, Venugopal teaches generating a dither signal; and adding said dither signal to said coefficients before said quantization to generate a quantized signal (page 2, paragraph 15, pages 7,8, paragraphs 87-89, page 6, paragraph 68).

The reason to combine dithering operation is the original MDCT coefficients that were set-to zero had small non-zero values that contributed to the overall energy of the audio stream. Dithering is intended to compensate for this lost energy.

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Srinivasan, Venugopal in teaching of Lin et al. to able to have a transcoding digital video signal converter for a video recording system for a display system in

which unauthorized compression/decompression detected using dithering operation adding to the coefficients before quantization to compensate for the energy of the signal.

8. Claims 3, 11, 12, 14, 19, 21-24 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,944,226 B1) in view of Srinivasan, Venugopal (US 20040170381 A1) as applied to claims 1, 2, 4-10,13,16-18, 20, 25 and 32 and further in view of Boyce et al. (US 5,887,115).

Regarding Claim 3, Lin et al. teaches a method of converting digital signals between a first and a second format (Col. 18, Lines 18-27), the method comprising: generating coefficients representative of said digital signals; subjecting said coefficients to quantization (Col. 18, Lines 18-47).

However, Lin et al. modified by Srinivasan, Venugopal fails to disclose subjecting said quantized signal to inverse quantization; and subtracting said dither signal from said signal subjected to inverse quantization signal.

However, Boyce et al. teaches subjecting said quantized signal to inverse quantization; and subtracting said dither signal from said signal subjected to inverse quantization (Col. 14, Lines 1-30).

The reason to combine during playback operation, a decoder within the receiver reverses this operation. The decoder first performs inverse quantization on the received reduced rate bit stream. Next the decoder subtracts the pseudo random dither pattern from the DCT coefficients produced by performing the inverse quantization step. This video data are then used

during long play mode playback operation to produce images, which will have less objectionable noise patterns as compared to those that would have resulted without the use of dithering.

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Boyce et al. in teaching of Lin et al. modified by Srinivasan, Venugopal to able to have a transcoding digital video signal converter for a video recording system for a display system in which increasing the recording time of a digital video tape recorder ("VTR") and for supporting multiple normal play modes of digital VTR operation, e.g., recording modes for recording SDTV and HDTV are also disclosed and generating video frame having good image quality.

Regarding Claim 11, Boyce et al. teaches controlling said data stream with a proportional-integrative control (Col. 7, Line 5 to Col. 8, Line 5).

Regarding Claim 12, Boyce et al. teaches input stream comprises a stream of digital video signals including pictures arranged in groups of pictures, and wherein said bitrate control assigns a value of target bits for each single picture of a group of pictures (Col. 6, Line 62 to Col. 8, Line 5).

Regarding Claim 14, Boyce et al. teaches low pass filtering is performed before conducting a pre analysis process (Col. 13, Lines 28-67).

Regarding Claim 19, Boyce et al. teaches an inverse quantizer for subjecting said quantized signal to inverse quantization; and a subtractor for subtracting said dither signal from said signal subjected to inverse quantization (Col. 14, Lines 1-30).

Regarding Claim 21, Boyce et al. teaches source of said dither signal comprises a gaussian, uniform, sinusoidal or triangular signal source (Col. 14, Lines 4-7).

Regarding Claim 22, Boyce et al. teaches source comprises a source of a pseudo-random variable having a uniform distribution (Col. 14, Lines 4-7, Lines 14-22).

Regarding Claim 23, Boyce et al. teaches source of dither signal includes a plurality of sources of independent pseudo-random variables (Col. 14, Lines 4-7, Lines 14-22).

Regarding Claim 24, Boyce et al. teaches a discrete cosine transform and transform module for subjecting said digital signals to a discrete cosine transform to generate said coefficients to be quantized as discrete cosine transform coefficients (Col. 8, Line 45 to Col. 9, Line 3).

Regarding Claim 26, Boyce et al. teaches a pre-analysis chain for subjecting said input stream to a preanalysis process, said chain including: a quantizer for quantizing said signals with a given quantization step; and a bit usage profile module for evaluating the number of bits spent for coding said coefficients (Col. 8, Line 25 to Col. 9, Line 17), wherein said bitrate control

block is configured for controlling the bitrate of said output data stream as a function of said preanalysis (Col. 6, Line 64 to Col. 8, Line 7).

Regarding Claim 27, Boyce et al. teaches bitrate control block comprises a proportional-integrative controller (Col. 9, Lines 18-67)

Regarding Claim 28, Boyce et al. teaches use in connection with an input stream of digital video signals including pictures arranged in groups of pictures, wherein said bitrate control block is configured for assigning said value of target bits for each single picture of a group of pictures (Col. 6, line 64 to Col. 7, Line 25, Col. 7, Lines 46-65, Col. 8, Line 25 to Col. 9, Line 17).

Regarding Claim 29, Lin et al. teaches quantizer for transcoding an input stream of digital signals at a first bitrate into an output bitrate at a second bitrate (Col. 21, Line 41 to Col. 22, Line 40).

Boyce et al. teaches including a low pass filter and a down sampling module for subjecting at least part of said input digital signals to low pass filtering and down sampling (Col. 13, Lines 36-62).

Regarding Claim 30, Boyce et al. teaches low pass filter is arranged upstream of a pre-analysis chain (Col. 13, Lines 36-62).

9. Claims15 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (US 6,944,226 B1) in view of Srinivasan, Venugopal (US 20040170381 A1) and Boyce et al. (US 5,887,115) as applied to Claims 3, 11, 12, 14, 19-24 and 26-30 above and further in view of Fedele; Nicola John (US 5920354 A).

Regarding Claims 15 and 31 Lin et al. teaches a method of converting digital signals between a first and a second format (Col. 18, Lines 18-27), the method comprising: generating coefficients representative of said digital signals; subjecting said coefficients to quantization (Col. 18, Lines 18-47).

However, Lin et al. modified by Srinivasan, Venugopal and Boyce et al. fails to disclose executing a decimation phase

However, Fedele teaches executing a decimation phase (Col. 4, Lines 23-49).

The reason to combine a tap filter is employed having a filter ratio derived from the ratio of the number of pixels being transcoded. Producing 9 NTSC pixels from 16 HDTV pixels in this manner will generate higher quality NTSC images than, for example, if 7 of the HDTV pixels were simply dropped (decimated). The coefficients of the 16.times.9 kernel of the 16-tap horizontal filter may be selected in accordance with desired performance characteristics or other requirements or standards, such as subjective transcoded image quality.

Thus it is obvious to one in the ordinary skill in the art at the time of invention was made to incorporate teaching of Fedele in teaching of Lin et al. modified by Srinivasan, Venugopal and Boyce et al. to able to have in video display system with transcoded pixels using decimation phase achieving desired characteristics displaying images without degrading quality.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Amini; Lisa et al. (US 6,628,300 B2) Transcoding proxy and method for transcoding encoded streams.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M. Dharia whose telephone number is 571-272-7668. The examiner can normally be reached on M-F 8AM to 5PM.

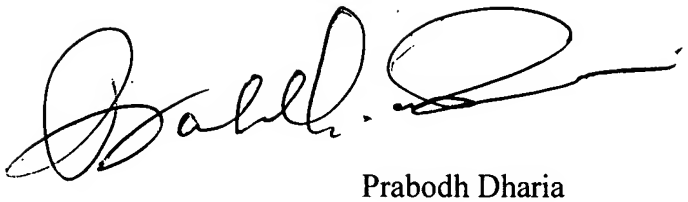
12. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231



Prabodh Dharia

Partial Signatory Authority

AU 2629

March 07, 2007